

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

|                         |                                |
|-------------------------|--------------------------------|
| re application of       | : <b>Confirmation No. 1536</b> |
| Mitsuaki OSHIMA         | : Docket No. 2004_0216         |
| Serial No. 10/780,550   | : Group Art Unit 2616          |
| Filed February 18, 2004 | : Examiner Robert Chevalier    |
| COMMUNICATION SYSTEM    | : <b>Mail Stop: AMENDMENT</b>  |

**INFORMATION DISCLOSURE STATEMENT**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

THE COMMISSIONER IS AUTHORIZED  
TO CHARGE ANY DEFICIENCY IN THE  
FEES FOR THIS PAPER TO DEPOSIT  
ACCOUNT NO. 23-0975

Sir:

Pursuant to the provisions of 37 CFR 1.56, 1.97 and 1.98, Patentee requests consideration of the references listed on attached form PTO-1449 and any additional information identified below in paragraph 3. A legible copy of each reference listed on the Form PTO-1449 is enclosed, except a copy is not provided for:

- ☒ each U.S. Patent and U.S. Patent application publication;
- ☐ each reference previously cited in the international application  
PCT/\_\_\_\_\_; and/or
- ☐ each reference previously cited in prior parent application Serial No.  
\_\_\_\_\_.

1a. ☐ This Information Disclosure Statement is submitted:

within three months of the filing date (or of entry into the National Stage) of the above-entitled application, **or**

before the mailing of a first Office Action on the merits or the mailing of a first Office Action after the filing of an RCE,

**and thus no certification and/or fee is required.**

05/12/2005 HAL11 00000010 10780550 180.00 DP  
01 FC:1806

- 1b. ☒ This Information Disclosure Statement is submitted

after the events of above paragraph 1a and prior to the mailing date of a final Office Action or a Notice of Allowance or an action which otherwise closes prosecution in the application, and thus:

(1) ☐ the certification of paragraph 2 below is provided, **or**

(2) ☒ the fee of \$180.00 specified in 37 CFR 1.17(p) is enclosed.

- 1c. ☐ This Information Disclosure Statement is submitted:

after the mailing date of a final Office Action or Notice of Allowance or action which otherwise closes prosecution in the application, and prior to payment of the issue fee, and thus:

**the certification of paragraph 2 below is provided, and**

**the fee of \$180.00 specified in 37 CFR 1.17(p) is enclosed.**

2. It is hereby certified

- a. ☐ that each item of information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the Statement, or
- b. ☐ that no item of information contained in the Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of the person signing the certification after making reasonable inquiry, was known to any individual designated in §1.56(c) more than three months prior to the filing of the Statement.

3. ☒ Consideration of the following list of additional information (including any copending or abandoned U.S. application, prior uses and/or sales, etc.) is requested.

In the J.A.C. Bingham reference, pages 9 and 10 are advertising pages and have been omitted.

4. For each non-English language reference listed on the attached form PTO-1449, reference is made to:

- a. ☐ a full or partial English language translation submitted herewith,
- b. ☐ a foreign patent office search report (in the English language) submitted herewith,
- c. ☐ the concise explanation contained in the specification of the present application at page,
- d. ☒ the concise explanation set forth in the attached English language abstract,
- e. ☒ the concise explanation set forth below or on a separate sheet attached to the reference:

JP 5-327807 corresponds to JP 3-62798, JP 3-95813, JP 3-155650, JP 3-182236 and JP 4-60739.

JP 7-264148 corresponds to JP 6-79668.

JP 7-322219 corresponds to JP 5-132984, JP 5-261612 and JP 5-349972.

5. ☐ A foreign patent office search report citing one or more of the references is enclosed.

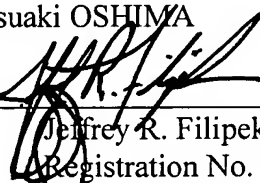
6. ☐ Statement Under 37 CFR 1.704(d)

Each item of information contained in the Information Disclosure Statement was first cited in any communication from a foreign Patent Office in a counterpart application, and this communication was not received by any individual designated in §1.56(c) more than thirty days prior to the filing of the Information Disclosure Statement.

Respectfully submitted,

Mitsuaki OSHIMA

By



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May 10, 2005

## INFORMATION DISCLOSURE STATEMENT

FORM PTO 1449 (modified)

ATTY DOCKET NO.  
2004\_0216SERIAL NO.  
10/780,550U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICELIST OF REFERENCES CITED BY APPLICANT(S)  
(Use several sheets if necessary)APPLICANT  
Mitsuaki OSHIMAFILING DATE  
February 18, 2004GROUP  
2616

Date Submitted to PTO: May 10, 2005

## U.S. PATENT DOCUMENTS

| EXAMINER<br>INITIAL |    | DOCUMENT<br>NUMBER | DATE     | NAME             | CLASS | SUBCLASS | FILING DATE IF<br>APPROPRIATE |
|---------------------|----|--------------------|----------|------------------|-------|----------|-------------------------------|
|                     | AA | 3,824,548          | 7-16-74  | Sullivan et al.  |       |          |                               |
|                     | AB | 3,959,726          | 5-25-76  | Hinoshita et al. |       |          |                               |
|                     | AC | 4,303,939          | 12-1-81  | Stephens et al.  |       |          |                               |
|                     | AD | 4,303,941          | 12-1-81  | Marti et al.     |       |          |                               |
|                     | AE | 4,309,726          | 1-5-82   | Tanaka et al.    |       |          |                               |
|                     | AF | 4,535,352          | 8-85     | Haskell          |       |          |                               |
|                     | AG | 4,564,858          | 1-14-86  | Resch            |       |          |                               |
|                     | AH | 4,581,639          | 4-8-86   | Judge            |       |          |                               |
|                     | AI | 4,769,819          | 9-6-88   | Matsutani et al. |       |          |                               |
|                     | AJ | 4,794,447          | 12-27-88 | Tsinberg         |       |          |                               |
|                     | AK | 4,800,426          | 1-24-89  | Glenn            |       |          |                               |
|                     | AL | 4,817,192          | 3-28-89  | Phillips et al.  |       |          |                               |
|                     | AM | 5,007,088          | 4-9-91   | Ooi et al.       |       |          |                               |
|                     | AN | 5,029,003          | 7-91     | Jonnalagadda     |       |          |                               |
|                     | AO | 5,134,464          | 7-28-92  | Basile et al.    |       |          |                               |

## FOREIGN PATENT DOCUMENTS

|  |    | DOCUMENT<br>NUMBER | DATE     | COUNTRY | CLASS | SUBCLASS | TRANSLATION<br>YES NO |  |
|--|----|--------------------|----------|---------|-------|----------|-----------------------|--|
|  | AP | 5-327807           | 12-10-93 | Japan   |       |          | abstract              |  |

## OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)

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|--|----|--|--|--|--|--|--|
|  | AQ | Masafumi SAITO et al., "Bit Error Rate Characteristics of OFDM in Multipath Environment", 1991 |  |  |  |  |  |
|  | AR | Ryutaro OHMOTO et al., " $\pi/4$ -shift QPSK Subcarrier Transmission", 1991                    |  |  |  |  |  |

EXAMINER

DATE CONSIDERED

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U.S. DEPARTMENT OF COMMERCE  
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| *EXAMINER<br>INITIAL |    | DOCUMENT<br>NUMBER | DATE     | NAME         | CLASS | SUBCLASS | FILING DATE IF<br>APPROPRIATE |
|----------------------|----|--------------------|----------|--------------|-------|----------|-------------------------------|
|                      | AA | 5,181,112          | 1-19-93  | Citta et al. |       |          |                               |
|                      | AB | 5,214,656          | 5-25-93  | Chung et al. |       |          |                               |
|                      | AC | 5,400,084          | 3-21-95  | Scarpa       |       |          |                               |
|                      | AD | 5,576,902          | 11-19-96 | Lane et al.  |       |          |                               |
|                      | AE | 5,218,622          | 6-8-93   | Fazel et al. |       |          |                               |
|                      | AF | 5,561,468          | 10-1-96  | Bryan et al. |       |          |                               |
|                      | AG | 5,598,220          | 1-97     | Citta et al. |       |          |                               |
|                      | AH |                    |          |              |       |          |                               |
|                      | AI |                    |          |              |       |          |                               |

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|--|----|--------------------|----------|---------|-------|----------|-----------------------|--|
|  | AJ | 7-264148           | 10-13-95 | Japan   |       |          | abstract              |  |
|  | AK | 7-322219           | 12-8-95  | Japan   |       |          | abstract              |  |
|  | AL | 3-48587            | 3-1-91   | Japan   |       |          | abstract              |  |
|  | AM |                    |          |         |       |          |                       |  |
|  | AN |                    |          |         |       |          |                       |  |

## OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)

|  |    |  |
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|  | AO | J. A. C. Bingham, "Multicarrier Modulation for Data Transmission: An Idea Whose Time Has Come", IEEE Communications Magazine, Vol. 28, May 1990, pages 5-8 and 11-14   |
|  | AP | B. Hirosaki, "An Orthogonally Multiplexed QAM System Using the Discrete Fourier Transform", IEEE Transactions on Communications, Vol. Com-29, No. 7, July 1981, pages 982-989  |
|  | AQ | L. J. Cimini, Jr., "Analysis and Simulation of a Digital Mobile Channel Using Orthogonal Frequency Division Multiplexing", IEEE Transactions on Communications, Vol. Com-33, No. 7, July 1985, pages 665-675 and Annex |

EXAMINER

DATE CONSIDERED